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PATENT CUSTOMER NUMBER, 34,986 Docket No. 01064.0011-07-000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	
Richard LEVY) Group Art Unit: 1714
Serial No.: 09/779,588) Examiner: Cephia D. Toomer
Filed: February 9, 2001)
For: SUPERABSORBENT POLYMER- LUBRICANT COMPOSITIONS ON A SUBSTRATE))

Commissioner for Patents P. O. Box 1450 Alexandria, Virginia 22313-1450

Sir:

APPELLANT'S BRIEF PURSUANT TO 37 C.F.R. §1.192

Appellant submits this brief on appeal in triplicate, setting forth the authorities and arguments on which he relies to maintain the appeal. Appellant paid the fee required by 37 C.F.R. § 1.17(c) when he filed his first Appeal Brief on November 29, 2001. The examiner, instead of submitting an Examiner's Answer in response to the brief, reopened prosecution of the application on March 28, 2002. The Manual of Patent Examining Procedure (M.P.E.P.) §1208.02 waives payment of the fee for filing a brief in these circumstances, and accordingly, appellant has not submitted a fee.

¹ The Patent and Trademark Office reassigned this application to examiner Cephia D. Toomer since examiner Margaret B. Medley, formerly handling the application has retired. All references in this brief to "the examiner" refer to the former examiner, Margaret B. Medley.

(1) Real Party in Interest

The inventor assigned the parent application, Serial No. 08/487,436 filed June 7, 1995 to Lee County Mosquito Control District, by an assignment recorded at Reel 7878 Frame 06020 on August 23, 1995 which makes Lee County Mosquito Control District the real party in interest.

(2) Related Appeals and Interferences

Appellant has two appeals before The Board of Patent Appeals and Interferences ["The Board"] in related applications, Serial No. 08/943,125 filed October 3, 1997 and Serial No. 09/359,809 filed July 21, 1999. Appellant has not been informed if either application is involved in an interference, but the Patent and Trademark Office has labeled the cover of their file for Application Serial No. 08/943,125 as follows:

U. S. PATENT AND TRADEMARK OFFICE RETURN TO (PTO1056)

This case is involved in an

INTERFERENCE SERVICE BRANCH

Interference Proceeding

Appellant has attached a certified copy of the Patent and Trademark Office file jacket showing the foregoing label on the front of the file jacket. Appellant's attorney had telephoned The Board to determine the status of the interference and was advised that

the Patent Office had not declared an interference in that application. The Board's decision in the pending appeal could directly affect, or be directly affected by, or have a bearing on the decision in the co-pending appeals.

(3) Status of Claims

Claims 57-85 remain pending for the purpose of this appeal.

(4) Status of Amendments

Appellant amended claims 57 and 68 and added claims 69-80 on August 23, 2002. Appellant also added claims 81-85 on September 9, 2003. The examiner has entered all amendments.

(5) Summary of Invention

The invention comprises a coating formed on the surface of a substrate, where the coating comprises a superabsorbent polymer further comprising a lubricant (written description, p. 20). The superabsorbent polymer absorbs greater than 100 times its weight in water (written description, p. 22, and claim 2 as originally filed) and desorbs water when the coating is dried (written description, pp.31, 32). The substrate may also comprise a cable, or a wire (the written description discloses lubricants on pp. 6-9, lubricants on cables p. 12, and lubricants on wire p. 6). The invention also relates to a product produced by the process of combining the superabsorbent polymer with the lubricant. The coating may also contain a viscosity modifying agent (written description, par. bridging pp. 10-11, and pp.11, 12, and 20) and/or a binder (written description, par. bridging pp. 17-18, pp.18, 19, 20, and 21). Appellant also discloses the superabsorbent polymer in combination with a lubricant as a substantially anhydrous

composition (written description, paragraph bridging pp. 31-32 and first sentence on p. 32).

(6) <u>Issues</u>

This appeal addresses the following issues:

- (a) The examiner's December 19, 2003 final rejection of claims 61-68 and 73-85 under 35 U.S.C. §112 first paragraph;
- (b) The examiner's December 19, 2003 final rejection of claims 58, 60, 65-68, 70, 72, 79, 80, 84, and 85 under 35 U.S.C. §112 first paragraph;
- (c) The examiner's December 19, 2003 final rejection of claims 57, 58, 61, 62, 65, 69, 70, 73, 74, 77, 81, and 82 under 35 U.S.C. §102 (b) based on Geursen et al., WO 93/18223 (counterpart U. S. Patent No. 5,534,304) (Geursen);
- (d) The examiner's December 19, 2003 final rejection of claims 57, 58, 61, 62, 65, 69, 70, 73, 74, 77, 81, and 82 under 35 U.S.C. §103 (a) based on Geursen with "The Admitted Prior Art" in view of Hopkins et al., U.S. Patent No. 5,362,766 ("Hopkins");
- (e) The examiner's June 12 rejection of claims 57-80 under 35 U.S.C. §103 (a), reasserted in her December 19, 2003 final rejection. The examiner based this rejection on Geursen in view of Hopkins, with "The Admitted Prior Art" and Sayad et al. United States Patent No. 3,336,225 ("Sayad");²

² The December 19, 2003 rejection tracks the June 12, 2002, 35 U.S.C.§ 112 rejection with the exception that the December 19 rejection addresses newly added

- (f) The examiner's December 19, 2003 provisional rejection of claims 57-85 under the judicially created doctrine of obviousness type double patenting of copending United States patent applications;
 - (i) Serial No. 09/357,957,
 - (ii) Serial No. 09/359,809, and
 - (iii) Serial No. 09/799,559.

(7) Grouping of Claims

Claims 57-85 do not stand or fall together. Appellant will demonstrate the separate patentability of the claims in the subsequent Argument.

(8)(a) Argument

The Rejection Under 35 U.S.C. § 112 First Paragraph

The examiner takes the position that the written description, did not reasonably convey to one skilled in the relevant art that the inventor had possession of the claimed invention at the time the application was filed. The examiner concluded the application did not support the combination of appellant's lubricant on a wire or cable substrate, a coating containing a superabsorbent polymer that desorbs water on drying, and a coating containing a binder.

claims 81-85. The December 19 rejection does not reject claims 59 and 71. By incorporating the June 12 rejection in the December 19 rejection, the examiner picks up the rejection of claims 59 and 71. The June 12 office action also rejects claims 57-80 under 35 U.S.C. §103. Newly added claims 83-85 therefore do not stand rejected under 35 U.S.C. §§102, or 103.

In the following discussion, appellant will show he had possession of the invention and demonstrate, as required by 37 C.F.R. § 1.192(c)(8)(i)(A), (B), and (C), the errors in the rejection and how appellant has complied with the first paragraph of 35 U.S.C. § 112, specifically showing how the written description and original claims describe the subject matter defined by each of the rejected claims.

Procedure for the Examiner to follow and Judicial Interpretation of 35 U.S.C. § 112

In making a rejection under 35 U.S.C. § 112 the M.P.E.P. requires the examiner to "review the claims and entire specification [sic], including specific embodiments. . . to understand how appellant provides support for the various features of the claimed invention. . . Such a review is conducted from a standpoint of one of skill in the art at the time the application was filed." (M.P.E.P. §2163 (2), p. 2100-164 Rev. 1, Feb. 2003) (citations omitted). The review should also "include a determination of the field of the invention and the level of skill and knowledge in the art. Generally, there is an inverse correlation between the level of skill and knowledge in the art and the specificity of disclosure necessary to satisfy the written description requirement." (M.P.E.P. §2163 (2), p. 2100-164 Rev. 1, Feb. 2003) (emphasis added). This is to say that [i]nformation which is well known in the art need not be described in the specification." (M.P.E.P. §2163 (2), p. 2100-164 Rev. 1, Feb. 2003) (citations omitted). "A patent need not teach, and preferably omits what is well known in the art. . . . enablement is a question of law based on underlying factual findings." (M.P.E.P. §2164.01 (a) (2), p. 2100-179 Rev. 1, Feb. 2003) (citations omitted).

Where the appellant presents new claims or amended claims, " 'the PTO has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims.' " In re Wertheim, 541 F.2d 257, 263, 191 U.S.P.Q. 90, 97 (C.C.P.A. 1976). (M.P.E.P. §2163 (2) (b), p. 2100-169 Rev. 1, Feb. 2003) The M.P.E.P. requires the examiner to "establish a prima facie case [in this regard] by providing reasons why a person skilled in the art at the time the application was filed would not have recognized that the inventor was in possession of the invention as claimed in view of the disclosure of the application as filed." (M.P.E.P. §2163.04 I, p. 2100-173 Rev. 1, Feb. 2003). Furthermore, " '[t]he examiner has the initial burden of presenting by a preponderance of the evidence why a person skilled in the art would not recognize in an appellant's disclosure a description of the invention defined by the claims.' In re Wertheim, 541 F.2d at 263, 191 U.S.P.Q. at 97." (M.P.E.P. §2163.04 I, p. 2100-173 Rev. 1, Feb. 2003). In rebutting any purported prima facie case of lack of support, the appellant can show that "each claim limitation . . .[is] expressly, implicitly or inherently supported in the originally filed disclosure. (M.P.E.P. §2163.04 I, p. 2100-169 Rev. 1, Feb. 2003). The Patent and Trademark Office applies the test of whether or not " 'the description clearly allows persons of ordinary skill in the art to recognize that he or she invented what is claimed. . . . [and] ... whether the disclosure of the application relied on 'reasonably conveys to the artisan that the inventor had possession at that time, of the later claimed subject matter.' " (M.P.E.P. §2163.02 B, p. 2100-171 Rev. 1, Feb. 2003) (citations omitted) (emphasis added). Stated otherwise, "the fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in

the art that, as of the filing date. . .appellant was in possession of the invention as now claimed." (M.P.E.P. §2163.02 B, p. 2100-171 Rev. 1, Feb. 2003) (citation omitted).

The following sections will show that the examiner has not identified the person skilled in the art to which the invention pertains. The prosecution of the application does not describe the background or skills of this person, or the particular area of expertise she or he would bring to bear on the application when reading it to determine if the application supports the claims on appeal. Additionally, the examiner has not made out a prima facie case that when this skilled artisan views the written description and the original claims, she or he would not find support for the inventive aspects of coating a cable or wire with the appellant's lubricant composition, use of a superabsorbent polymer in the composition that desorbs water upon drying, and the use of a binder in the lubricant composition. Furthermore, the following sections show that the examiner has not met the Patent and Trademark Office's burden to establish any of the foregoing "by a preponderance of the evidence," but rather appellant has disclosed these questioned aspects of the claimed invention either "expressly, implicitly, or inherently. . . in the originally filed disclosure." (M.P.E.P. §2163.04 I, p. 2100-169 Rev. 1, Feb. 2003.)

The rejection of Claims 61-68 and 73-85 Under 35 U.S.C. § 112 first paragraph

The examiner rejects claim 61-68 and 73-85 under 35 U.S.C. § 112 first paragraph as containing subject matter which the appellant did not describe in the

specification in such a way as to reasonably convey to one skilled in the art that at the time he filed the application, he had possession of the claimed invention.

In specifically rejecting the claims, the examiner did not find any explicit disclosure for the expression "the substrate comprises a cable" and "the substrate comprises a wire." (December 19 Office Action, p. 2). Appellant's disclosure, however, does in fact support both expressions "expressly, implicitly, or inherently," as the following will show.

Page 20 of the written description makes clear that the invention <u>inter alia</u> comprises the application of a "coating" of the disclosed superabsorbent polymer-lubricant composition to a substrate as well as the article of manufacture obtained.

Page 20 also describes appellant's use of related art lubricants specified at pages 6 -19 in the superabsorbent polymer-lubricant composition. The lubricants noted at page 12 in this regard are used in <u>cables</u> (written description, page 12, line 6 from the bottom). The written description also describes related art lubricants applied to a <u>wire</u> substrate in "wire drawing processes" at page 16, line 8 from the bottom, and page 17, line 5.³

Page 19, second paragraph further notes "that there is a need for additional materials that will provide the same advantage as those of the related art as well as additional advantages and also materials that will overcome some of the various disadvantages of the related art." (Emphasis added.) The fourth paragraph on page 19 of the written description then states that "these and other advantages are obtained according to the present invention, which is the provision of a composition and a

³ The written description also discloses appellant's superabsorbent polymerlubricant composition on a wire whisk at page 47, line 8 from the bottom.

process to enhance the various advantages of the related art and which also substantially obviate one or more of the limitations and disadvantages of the described prior compositions of matter and processes." (Emphasis added.)

The "related art" disclosed in the application specified "cable" coatings and "wire" coatings. Clearly this comprises a description of using appellant's superabsorbent polymer-lubricant composition in cable and wire applications where he at a minimum stated that these "materials. . . will provide the same advantage as those of the related art. . . ."

The law does not require verbatim disclosure,⁴ but only that the appellant discloses the invention in a way to show that he had possession of the subject matter of the invention at the time he filed the application. Appellant has met that requirement.

The application therefore supports claim 61, and the claims dependent on it that relate to a "cable" coated with appellant's superabsorbent polymer-lubricant composition either expressly, implicitly, or inherently. The application also supports claim 62, and the claims dependent on it that relate to a "wire" coated with appellant's superabsorbent polymer-lubricant composition, either expressly, implicitly, or inherently.

Furthermore, the examiner at page 5, paragraphs 5 and 6 of the December 19

Office Action finds that pages 17 and 18 of the application directed to "binder systems"

^{4 &}quot;While there is no <u>in haec verba</u> requirement, newly added claim limitations must be supported in the specification through express, implicit or inherent disclosure." (M.P.E.P. §2163 (2), p. 2100-164 Rev. Feb. 1 2003); "'the description need not be in <u>ipsis verbis</u> [i.e., 'in the same words'] to be sufficient.' " (M.P.E.P. §2163 (2), p. 2100-166 Rev. Feb. 1 2003) (citation omitted); "[t]he subject matter of the claim need not be described literally (i. e., using the same term or <u>in haec verba</u>) in order for the disclosure to satisfy the description requirement." (M.P.E.P. §2163.02, p. 2100-172 Rev. Feb. 1 2003).

do not support the subject matter of claim 67, 68, 79, and 80 that the coating further comprises a binder. The examiner in commenting on the appellant's description of the binder "did not find any explicit disclosure to any binders at pages 19, 20 and 21 and applicants [sic] did not particularly set forth or point out any such paragraph as to the location of said binders." (December 19 Office Action, p. 6, lines 1-3).

Appellant again relies on pages 17-21 of the written description for support of the binders now claimed. The paragraph bridging pages 17 and 18 refers to "various thermosetting and thermoplastic and curable <u>binder</u> systems including phenolic, vinyl, acrylic, alkyd, <u>polyurethane</u>, silicone and, epoxy resins." (Emphasis added). Appellant then states, "It would be an advantage, however, to provide a novel binder that performed in the same way <u>or improved on the function of these binders</u>." (Written description, paragraph bridging pages 17 and 18) (emphasis added).

As noted before, the written description states on page 19, second paragraph "that there is a need for additional materials that will provide the same advantage as those of the related art as well as additional advantages and also materials that will overcome some of the various disadvantages of the related art." (Emphasis added)

The fourth paragraph on page 19 of the written description then states that "these and other advantages are obtained according to the present invention, which is the provision of a composition and a process to enhance the various advantages of the related art and which also substantially obviate one or more of the limitations and disadvantages of the described prior compositions of matter and processes."

(Emphasis added).

The prior art as described in the application related to various binders such as polyurethane binders, and the application goes on to describe that the present invention "improved on the function of these binders." Clearly this comprises a description of using the binders of the prior art in combination with the superabsorbent polymers and lubricants broadly described in the first paragraph on page 20 of the written description.

Again, the law does not require verbatim disclosure, just that the appellant discloses the invention in a way to show that he had possession of the subject matter of the invention at the time he filed the application. Appellant's written description has met that requirement either expressly, implicitly or inherently.

The rejection of Claims 58, 60, 65-68, 70, 72, 79, 80, 84, and 85 Under 35 U.S.C. § 112 first paragraph

The examiner rejects claims 58, 60, 65-68, 70, 72, 79, 80, 84, and 85 under 35 U.S.C. § 112 first paragraph as containing subject matter which the appellant did not describe in the specification in such a way as to reasonably convey to one skilled in the art that at the time he filed the application, he had possession of the claimed invention. The examiner in making this rejection focused on the claim 58 parameters that "the superabsorbent polymer. . . desorbs water when the coating is dried."

The examiner argues that the statement on pages 31 and 32 of the written description that "the lubricant composition is then dried to remove water This removes substantially all of the water introduced in the first part of the process" does not support the "subject matter of claim 58 that the 'superabsorbent polymer . . . desorbs water [when] the coating is dried. . . . " (December 19, Office Action, p. 5, par.

3). The examiner makes substantially the same argument with regard to claim 70.

Pages 31 and 32 in this regard describe a method of combining the superabsorbent polymer with the lubricant and additives, when employed, by using water or high humidity (80% R. H.) to swell the superabsorbent followed by placing the composition obtained in a 27-38% R. H. environment to remove "substantially all of the water introduced in the first part of the process." The application therefore unequivocally states that the superabsorbent polymer desorbs water upon drying. The examiner, however argues "[t]his step for drying the lubricant composition appears to be different than the step 'for desorbing water when the coating is dried' of instant claims 58 and 70." (December 19 Office Action, p. 5, par. 4.) The examiner has not articulated how this step differs from the step of "desorbing water when the coating is dried" of claims 58 and 70. She points to the different words of appellant's written description, but has not described how the two are distinct.

Geursen et al., wo 93/18223 (counterpart U. S. Patent no. 5,534,304) (Geursen) Does not Anticipate Claims 57, 58, 61, 62, 65, 69, 70, 73, 74, 77, 81, and 82 Under 35 U.S.C. §102 (b)

Geursen et al., WO 93/18223 (counterpart U. S. Patent No. 5,534,304)(Geursen) does not anticipate claims 57, 58, 61, 62, 65, 69, 70, 73, 74, 77, 81, and 82 under 35 U.S.C. §102 (b). Geursen discloses a process for treating a substrate such as a fiber or fibrous product with a superabsorbent material and addresses the dual problem, on

the one hand of developing a flowable aqueous emulsion having a sufficient amount of superabsorbent polymer to form a coating that acts as a water barrier, and on the other, of providing a formulation that did not gel because of the superabsorbent polymer.

Geursen specifically notes:

The drawback to impregnating a substrate with a superabsorbent material dispersed in an aqueous system is that, due to the superabsorbent's high viscosity-enhancing action, steady feeding of it is extremely difficult if not impossible. Further, on account of the restricted superabsorbent concentration in the impregnating liquid only a small quantity of superabsorbent material can be applied to the yarn per treatment. Another drawback to this method is that the comparatively large amount of impregnating liquid which is applied to the substrate with the superabsorbent material has to be removed by evaporation.

Geursen WO 93/ par. bridging pp. 4-5; U.S. column 2, lines 57-67.5

The superabsorbent polymer employed by Geursen does not dissolve in water, so Geursen formed an emulsion of the polymer in water by polymerizing the water soluble monomer in a water-in-oil emulsion to form the polymer in the aqueous phase. (WO 93/ p. 7, lines I6-19; U.S. Col. 4, lines 1-16)6. Geursen uses the emulsion as a coating, and subsequently heat-treats it to drive off the water phase and oil phase, generally a relatively low boiling paraffin hydrocarbon. (WO 93/ p. 5, lines 19-28; U. S. Col. 3, lines 15-23). Geursen also discloses commercially available water-in-oil

Willemsen et al. U. S. Pat. No. 6,319,558 ("Willemsen") (of record), assigned to Akzo Nobel, as is Geursen, acknowledges the same problem. Willemsen USPTO Patent Full Text and Image Data Base, p. 4, par. 1.

emulsions prepared in the same way, which may also include additives, such as lubricants and emulsifying agents. (WO 93/ p. 7, lines 20-27, p. 8 lines 10-14; U. S. Col. 4, lines 17-26; 42-47).

The disclosed aqueous polymerization of the monomer into a superabsorbent polymer resulted in a polymer that absorbs about 45 or 20 times its weight in water. An examination of the Geursen examples will show that the reference contains experimental data showing only the production of these low water absorbing superabsorbent polymers, and the desirability of using them and not superabsorbent polymers that absorb greater than about 100 times their weight in water. Geursen therefore teaches away from the use of superabsorbent polymers that absorb greater than about 100 times their weight in water, and also lacks an enabling disclosure of how to produce oil in water emulsions of superabsorbent polymers that absorb greater than about 100 times their weight in water.

The reference describes yarns coated with a superabsorbent polymer composition which have a "swelling value" (WO 93/ p. 13line 15 to p.14 line 5; U. S. Col. 7, lines 19-44) defined by a formula (WO 93/ p.13, lines 9-14; U. S. Col. 7, lines 45-51). The swelling value consists of a number that indicates the relative water absorbency of the yarn or the yarn coated with the superabsorbent polymer composition.

Geursen forms a coating "via an emulsion of the superabsorbent in a water-in-oil-emulsion, the superabsorbent material being present in the aqueous phase of the emulsion." WO 93/ p.7, lines 1-5; U.S. col. 3, lines 64-67 (emphasis added).

The following analysis of the data in Geursen bears out the reference does not teach or suggest superabsorbent polymers that can absorb greater than about 100 times their weight in water for the process or product disclosed.

Table A, reports the swelling values of a polyester yarn coated with a superabsorbent water-in-oil emulsion. Prior to coating, the yarn had a swelling value of 9 (WO 93/ p. 17, line25; U. S. Col. 9, lines 34-35). The formula in WO 93/ p.13, lines 9-14; U. S. Col. 7, lines 45-51 gives the swelling value of the superabsorbent polymer:

swelling value =
$$(a - b) \times 100$$

b

Arbitrarily setting the weight of the yarn (the value for "a") at 100 grams will give the dry weight of the yarn (the value for "b") as follows:

Example 1 Swelling value of <u>uncoated</u> yarn = 9 (Col. 9, lines 34-35)

100-b = 0.09

b

100 = 1.096b

b = 91.74 (dry weight of yarn)

Yarn water absorption = 100 - 91.74 = 8.26

Example 1

Swelling value of <u>coated</u> yarn = 114 (Col. 9, line 28)

100-b = 1.14

b

100 = 2.146b

b = 46.72 (dry wt. of yarn and superabsorbent polymer)

Coated yarn water absorption = 100 - 46.72 = 53.28

53.28 -8.26 = 45.02 water absorbed by superabsorbent polymer

46.27 x 2.1% polymer (Col 9, line 28) = 0.97 superabsorbent polymer on yarn

45.02 = 46.3 Superabsorbent polymer absorbs 46.3 times its weight in water.

This shows that 0.97 grams of superabsorbent polymer picked up or absorbed 45.02 grams of water or 46.3 times its weight in water, less than one-half of that of

appellant's claimed superabsorbent polymer which absorbs greater than about 100 times its weight in water.

The reference also shows Example 3 uses the same yarn employed in Example 1 but with the application of 7.0 weight percent of the same superabsorbent polymer employed in Example 1. Also the swelling value of the sample increased from 114 in Example 1 to 171 in Example 3. Using the method above (pp. 6-7 of this brief), shows that the superabsorbent polymer of Example 3 had a water absorbency of about 20 (actually, 21.2, which sets the superabsorbent polymer concentration at about 80 weight %) as compared to the water absorbency of Example 1 of 45 (i.e., a superabsorbent polymer concentration of 55 weight %).

The same calculations will show the superabsorbent polymer of experiment 4 (Table B) coated on a nylon-6,6 yarn absorbs about the same amount of water, i.e., less than about one half appellant's claimed superabsorbent polymer that absorbs greater than about 100 times its weight in water.

These data from Geursen clearly show the inventors did not know how to combine a lubricant with a superabsorbent polymer that absorbs greater than about 100 times its weight in water, or the desirability of doing this. Since the reference does not disclose this type of polymer coating or how to produce it, Geursen does not contain an enabling disclosure. Appellant, on the other hand, has disclosed methods on how to combine superabsorbent polymers that absorb greater than about 100 times their weight in water with lubricants and use the combination as a lubricant.

Geursen attempted to address the problem of coating a superabsorbent polymers on yarn in light of the primary difficulty the industry had with them, namely that

when combined with water they caused extremely high viscosities at a relatively low concentration. The superabsorbent polymer formulation sought by Geursen, not only had to have some flowable characteristics in order to apply it as a coating material, but also had to have a relatively high solids content. <u>Cf.</u> Geursen, WO 93/ par. bridging pp. 4-5, U.S. column 2, lines 57-67.

Geursen addressed this problem by polymerizing the superabsorbent monomer to form an emulsion with the superabsorbent polymer in the water phase. Analyzing the nature of water-in-oil emulsions will illustrate further how Geursen achieved the goal of not only providing a superabsorbent polymer formulation having relatively high superabsorbent polymer solids, but also a flowable composition that could be coated onto a substrate with relative ease.

This water phase consists of very small droplets of superabsorbent polymer in combination with water (the discontinuous phase) suspended in the oil phase (the continuous phase). One can easily visualize that the viscosity of the droplets made up of water and a superabsorbent polymer would have little, if any, effect on the oil or continuous phase if the particles were sufficiently mobile in the continuous phase, e. g., by employing a sufficient volume of the continuous phase. By utilizing an emulsion, Geursen addressed the major problem caused by the high viscosity superabsorbent polymers, namely their tendency to impart high viscosity to the formulation. Geursen thereby obtained a formulation that flowed readily and fulfilled the need to employ superabsorbent polymers as an easily applied coating.

Geursen, however, had to address another problem, namely the superabsorbent polymer solids content in the dispersed phase or the droplets. If he employed a

superabsorbent polymer that absorbed 1,000 times its weight in water the droplets would contain 1,000 parts by weight of water for every one part of superabsorbent polymer (0.1% superabsorbent polymer) and he would not resolve the problem of applying a sufficient amount of superabsorbent polymer onto a substrate so it could act as a water barrier. Similarly if he used a superabsorbent polymer that absorbed greater than about 100 times its weight in water, each droplet would contain about 100 parts by weight of water for one part of superabsorbent polymer (1% by weight of superabsorbent polymer). In both instances, the superabsorbent polymers would not provide a high solids coating.

Geursen appears to address this solids problem by using a superabsorbent polymer that absorbs only about 45 times its weight in water, and using the analysis above, each droplet of the emulsion would contain about 55 parts by weight of superabsorbent polymer and 45 parts by weight of water, a 55-fold increase in solids over a superabsorbent polymer that absorbs about 100 times its weight in water.

Geursen employing a superabsorbent polymer that absorbed about 20 times its weight in water gave him a solids content of 80 parts of the polymer, amounting to an 80-fold increase over a superabsorbent polymer that absorbs about 100 times its weight in water.

Using superabsorbent polymers that only absorb about 45 or 20 times their weight in water allowed Geursen to achieve the dual objective of not only laying down relatively large amounts of superabsorbent polymer as a coating, but also avoiding the problem of removing large quantities of water from the substrate.

Geursen also appears to avoid this problem of high water absorbing superabsorbent polymers by using a sodium sulphonate electrolyte in the emulsion polymerization process. For example, Geursen, WO 93/ par. bridging pp.16-17; U. S. column 9, lines 8 et. seq. discloses using a sodium sulphonate ("sulpho") salt of the superabsorbent monomer. ⁷

Levy (of record), however, discusses this well known technique of reducing both the viscosity and water absorbency of a superabsorbent polymer, observing:

normally, unmixed formulations of superabsorbent polymers and water have a tendency to form gels of such a high viscosity that they are not flowable. An additional technique used to render a viscous superabsorbent polymer composition . . . flowable, is the additional [sic, addition] of varying concentrations of one or more salt(s)/electrolyte(s) such as sodium chloride. . . . These salt(s)/electrolyte(s) have a tendency to interfere with the hydrogen bonding or reduce the hydrophilic bonding of the water to the gel. Also, superabsorbent polymers . . . absorb less water when electrolytes are present.

Levy, U.S. Patent No. 4,985,251 column 15, lines 12-26 (emphasis added).

Takeda et al. United States Patent No. 4,618,631 (of record) teaches the same phenomenon in table I at column 7, lines 41-55, Table II, column 8, lines 60-65, and Table III, column 10, lines 1-10. These data show that the addition of an electrolyte to a superabsorbent polymer reduces the water absorbency of the polymer by a factor of about ten. For example, the addition of an electrolyte to a superabsorbent polymer with a water absorbency of about 500 times its weight in water will reduce the absorbency of the polymer to about fifty times its weight in water. Garner et al. <u>Journal of Chemical</u> Education, January 1997, Vol. 74 No. 1, p. 95 (of record) describes this as well.

⁷ Geursen might also have employed sodium chloride as an electrolyte to achieve this result, which this brief discusses later.

This raises the question as to whether or not Geursen added sodium chloride or a similar salt to the superabsorbent polymer emulsion to reduce the water absorbency of the polymer. A further examination of the data reported in Table A of Geursen suggests this. The superabsorbent polymer of Example 1 of Geursen absorbed about 45 times its weight in water, whereas the superabsorbent polymer of Example 3 absorbed about 20 times its weight in water. Bearing in mind that Geursen employed the same superabsorbent polymer in both examples, the skilled artisan would know that something was done in the experiments to obtain that difference in water absorbency, but not reported. Appellant believes that Geursen added a salt such as sodium chloride to the emulsion of Example 3 to change the water absorbency of the superabsorbent polymer.

Another factor that influences the absorbency of these superabsorbent polymers is the degree of polymer cross-linking, but Geursen doesn't discuss this, even though known in the prior art, e.g., Garner et al. supera. Geursen by employing the same superabsorbent polymer in both examples 1 and 3 does not appear to have changed the cross-linking of the superabsorbent polymer. Geursen also discloses the addition of other components to the polymerization reaction, without indicating anything about the effect they may have on water absorbency of the polymer obtained. Geursen, WO 93/par. bridging pp. 7-8, p. 8, lines 20-30; U.S. column 4, lines 28-33, lines 51-58.

Although Geursen might appear to disclose using superabsorbent polymers having water absorbencies greater than 100, (WO 93/ par. bridging pp.12-13; U.S. column 7, lines 1-6) he does not. A closer reading of the reference shows this disclosure relates to a "product" further described as a combination of the substrate

with the superabsorbent polymer, and not the superabsorbent polymer alone. WO93/ lines 23-24; U.S. column 6, lines 57-60. As illustrated above, Geursen's substrates absorb water and have an affect on the overall water absorbtion of the combination. The water absorbtion of the "product" takes into account the combined effect of the substrate absorbing water and the polymer absorbing water. Geursen therefore does not teach the use of a superabsorbent polymer having a water absorbency greater than about 100, but rather the water absorbency of the "product" which is the substrate combined with the superabsorbent polymer.

Because Geursen teaches superabsorbent polymer coatings that absorb only about 45 or 20 times their weight in water, the reference clearly raises the question of how the skilled artisan gets over the hurdle of this water absorbency of 45 or 20 to arrive at appellant's lower limit of water absorbency greater than about 100, and why she or he would be led by the reference to do this? The reference clearly lacks an enabling disclosure of how to do it. The examiner therefore has not met the burden of providing evidence that Geursen does in fact show a superabsorbent polymer in an aqueous medium suitable for coating a substrate, where the superabsorbent polymer absorbs greater than about 100 times its weight in water. Lacking this evidence, the rejection cannot stand.

The Examiner's December 19, 2003 Final Rejection of claims 57, 58, 61, 62, 65, 69, 70, 73, 74, 77, 81, and 82 nder 35 U.S.C. §103 (a) Based on Geursen With "The Admitted Prior Art" in View of Hopkins;

The June 12, 2002 rejection of claims 57-80 under 35 U.S.C. §103 (a)

Based on Geursen with "The Admitted Prior Art" in View of Hopkins and Sayad et al. United States Patent No. 3,336,225 ("Sayad")

The examiner rejects claims 57-80 under 35 U.S.C. § 103 (a) as obvious in view of Geursen combined with the admitted prior art in view of Hopkins et al., U.S. Patent No. 5,362,766 ("Hopkins") and Sayad et al. United States Patent No. 3,336,225 ("Sayad").

Appellant distinguishes Geursen for all of the reasons given previously. Hopkins describes a method for combining a superabsorbent polymer with a "matrix" material such as cellulose acetate, methacrylate polymers, polyvinyl acetate, copolymers and combinations of these polymers. (Hopkins, col. 1, lines 29-35; col. 2, lines 10-19). The "matrix" material further includes "plasticizers" (col. .2, line 23) which, the skilled artisan knows increases the flexibility of the matrix material, i.e., cellulose acetate, methacrylate polymers, polyvinyl acetate, copolymers and combinations of these polymers.

A "matrix" does not disclose or suggest a "substrate." Webster's Ninth New Collegiate Dictionary defines "matrix" as a "material in which something is enclosed or embedded (as for protection or study)." Hopkins obviously uses the matrix to envelop particles of the superabsorbent polymer in describing the invention as "providing a

matrix material in a suitable solvent; mixing <u>particles</u> of a superabsorbent polymer into said solutioned [sic] matrix material to form a <u>suspension</u>; homogenizing the <u>suspension</u>; and removing the solid from the <u>suspension</u>." (Col. 1, lines 30-35) (Emphasis added). The foregoing description clearly conveys that Hopkins only dissolves the matrix in a solvent and not the superabsorbent polymer, but rather mixes particles of the superabsorbent polymer into the solution of the matrix in the solvent to form a "suspension."

In fact, Hopkins defines the term "suspension" as a "mixture containing a substantially uniform distribution of solute and particulate matter through the liquid carrier." (Col. 2, lines 30-33). There can be no doubt that Hopkins by referring to the "particles of a superabsorbent polymer" in this section, further confirms the end product comprises a matrix of materials such as cellulose esters that envelop particles of superabsorbent polymer.

The subsequent disclosure relative to the plasticizers clearly teaches that these plasticizers combine with the matrix material and not with the superabsorbent polymer. Hopkins in this regard states that the "matrix material may further comprise additives [such as] plasticizers" (Col. 2, lines 19-23) (emphasis added). Here, Hopkins clearly describes he plasticizes the "matrix" and not the superabsorbent polymer.

Thus the addition of plasticizers such as glycerin to the Hopkins composition addresses the need to plasticize the matrix material and in no way would teach a person with ordinary skill in the art that the plasticizers combine with the superabsorbent polymer.

The examples describe adding a solution of cellulose acetate in acetone in combination with a superabsorbent polymer (Sanwet[®] IM-1000) and glycerin (a plasticizer) to a high shear mixing apparatus to form a solution, which when subsequently cast into films and air dried retains a 0.9% saline solution. Although Hopkins combines a superabsorbent polymer with acetone in the examples, the skilled artisan knows that acetone will not dissolve superabsorbent polymers such as Sanwet[®] IM-1000, and that in essence the combination of acetone and superabsorbent polymer comprises a slurry of particles of the superabsorbent polymer in the acetone in order to facilitate introducing it into the solution of cellulose acetate. Furthermore, Hopkins had no awareness of any lubricating properties of the combination of cellulose acetate or other matrix materials with a superabsorbent polymer.

Hopkins fails to teach a utility for the combination of superabsorbent polymer and matrix material. The reference describes the matrix material as having good absorbent and retention properties and further immobilizes the superabsorbent polymer. (Col. 1, lines 18-19). Hopkins further indicates the matrix materials "can be made porous as would be desirable for filtration membranes." (Col. 1, line 66, Col. 2, lines 7-9).

The reference constitutes nonanalogous art in that it fails to teach anything about the formation of a lubricant or the use of the disclosed material for the purpose of lubrication. Appellant no longer relies on the "consisting essentially of" terminology in the claims to distinguish Hopkins.

The teachings of Brannon-Peppas (the admitted prior art) only refer to art known superabsorbent polymers, and standing by itself, or even taken with the Hopkins

teaching does not convey to a person with skill in the art that Hopkins obtains a superabsorbent polymer combined with a lubricant.⁸

Appellant distinguishes Sayad since the reference only teaches water-soluble acrylamides and not superabsorbent polymers that absorb greater than about 100 times their weight in water. The two polymers are not the same. Superabsorbent polymers swell when combined with water, but do not dissolve in water. Water-soluble acrylamides, as the term implies, dissolve in water. Sayad employs water-soluble acrylamides in combination with an aqueous soap solution in a method for reducing friction on a conveyor, but does not use superabsorbent polymers. In addition, Sayad fails to teach or suggest appellant's lubricant additives with the aqueous soap solution.

The examiner nonetheless asserts that Sayad discloses a superabsorbent polymer even though she cannot find anything in the reference to support her conclusion. In fact, if Sayad did contain this teaching, the examiner would not have to resort to combining the teachings of Sayad with other references that specifically describe superabsorbent polymers. The examiner does not point to anything in this reference that shows Sayad describes superabsorbent polymers. She cannot, since Sayad does not contain this teaching.

⁸ In the June 12, 2002 rejection, the examiner points out that Geursen incorporates the teachings of Arroyo et al. EP 0 351 100 ("Arroyo") which discloses "ÁDRIDALL" [sic "ARIDALL"] polymers, known to have a water absorbency of greater than 100. (June 12 Office Action, p. 9). A review of the Arroyo disclosure shows that it contains no teaching of a specific superabsorbent polymer that absorbs water in these quantities, but only refers to one polymer, which appellant could not find on the internet. It appears that there are several polymers sold under the ARIDALL trademark, but the examiner has not been able to identify any that have the water absorbency she claims. Furthermore, as pointed out above, the analysis of Geursen shows he did not make or teach how to combine a lubricant with a superabsorbent polymer that absorbs greater than 100 times its weight in water.

The References Provide No Motivation

to Combine Their Teachings

The examiner "has to point to some teaching, suggestion or motivation in the prior art to select and combine the references that . . . [she] relied on to show obviousness." In re Lee, 61 U.S.P.Q. at 1434 (emphasis added). "When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to select and combine the references relied on as evidence of obviousness...'the central question is whether there is a reason to combine references." Lee, 61 U.S.P.Q. at 1435 (emphasis added) (citation omitted). Appellant submits that the examiner has not pointed to anything in the cited references that would lead a person with ordinary skill in the art to combine their teachings.

The combination of references does not make appellant's invention obvious unless the prior art also suggests the desirability of the combination. M.P.E.P. Section 2143.01 citing In re Mills, 916 F.2d 680, 16 U.S.P.Q. 2nd 1430 (Fed. Cir. 1990). Also, there must be some reasonable expectation of success (M.P.E.P. Section 2143.02, and cited authorities) and that some advantage or expected beneficial result would have been produced by their combination. (M.P.E.P. Section 2144 citing In re Sernaker, 702 F.2d, 989, 994-95, 217 U.S.P.Q. 1 (Fed. Cir. 1983).

In rejecting the claims on a combination of references, the examiner has Hopkins teaching a polymer such as cellulose acetate with a plasticizer, as a matrix for a superabsorbent material, and Geursen teaching a superabsorbent polymer absorbing only about 45 times its weight in water applied to a substrate as a water in oil emulsion,

followed by removing the oil phase (a paraffinic hydrocarbon) by evaporation. Adding The Admitted Prior Art to the mix gives the examiner citations to show the art contains teachings of superabsorbent polymers that absorb greater than about 100 times their weight in water, as well as extensive disclosures of lubricant materials and technology, but appellant disclosed this in the written description when he filed the application.

Where then, in all of these references, can a skilled artisan find a teaching, suggestion, or motivation to pick and chose from them, and then combine the pieces to arrive at appellant's invention that broadly comprises a lubricant in combination with a superabsorbent polymer that absorbs greater than about 100 times its weight in water? Appellant submits the skilled artisan couldn't without appellant's disclosure in front of them.

A 35 U.S.C. § 103 rejection cannot stand if it amounts to taking appellant's "claims as a frame and the prior art references as a mosaic to piece together a facsimile of the claimed invention." W. L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1551, 220 U.S.P.Q. 303 (Fed. Cir. 1983).

The examiner has not pointed to anything in the references that suggest the desirability of the combination. She also has not found anything in them that points to some reasonable expectation of success in making the combination, and lastly she gives no indication where they teach or suggest some advantage or expected beneficial result would have been produced by their combination. The references neither contain these suggestions nor convey some reasonable expectation of success. They fail to meet any test of motivation to combine their teachings.

The Examiner Has Improperly Relied on Non-Analogous Art to Make The Rejection

By combining the teachings of the various references under 35 U.S.C. § 103, the examiner has relied on non-analogous art since the references are not related to the same field of endeavor or reasonably pertinent to the problem addressed by the inventor. In re Clay, 966 F.2d, 656, 23 U.S.P.Q. 2d at 1058 (Fed. Cir. 1992).

Hopkins falls into the category of non-analogous art since the reference describes a polymeric matrix for a superabsorbent polymer having no disclosed utility, other than a suggestion that it forms a porous filtration membrane. Hopkins does not relate to the same field of endeavor nor is it "reasonably pertinent to the problem with which the inventor is involved." <u>Clay</u>, 966, F.2d at 658, 23 U.S.P.Q. 2d at 1060.

The Provisional Double Patenting Rejection

The examiner provisionally rejects claims 57-85 under the judicially created doctrine of obviousness-type double patenting as unpatentable over the claims of copending applications Serial Nos. 09/357,957, 09/359,809, and 09/799,559.

The Patent Office has not issued a Notice of Allowance in applications Serial Nos. 09/359,809, and 09/799,559, but has allowed application Serial No. 09/357,957.9

Applicant submits a terminal disclaimer with this brief regarding allowed application Serial No. 09/357,957, but points out to The Board that as of this time he has not paid

⁹ The examiner of application Serial No. 09/799,559, has allowed some claims, but has not issued a Notice of Allowance, since she indicates she may declare an interference.

the issue fee in the allowed application. As to the applications Serial Nos. 09/359,809, and 09/799,559, applicant points out that when a provisional double patenting rejection is the sole remaining rejection in one of two or more applications subject to the same rejection but which remain under rejection on additional grounds, the MPEP requires the examiner to withdraw the rejection in that application and permit it to issue as a patent. Once it issues, the MPEP instructs the examiner to apply a non-provisional double patenting rejection to the other application(s). MPEP § 804(I)(B) p.800-19 August, 2001.

Importantly, the examiner has committed to addressing the provisional double patenting rejection in the foregoing manner at page 7 last paragraph of her April 4, 2002 Office Action In Serial No. 09/359,809, one of the applications she applies to the double patenting rejection in this application.

The Claims Do Not Stand or Fall Together

If The Board finds the prior art only anticipates the generic claims or renders them obvious, then the prior art would not necessarily anticipate or make obvious the invention of claims 65, 66, 68, 77, 78, and 80 as a product produced by a process, in view of the decision of the Court of Appeals for the Federal Circuit in Exxon v. Lubrizol, 64 F.3d 1553, 35 U.S.P.Q. 2d, 1801 (Fed. Cir. 1995). In Exxon, the court considered the infringement of a lubricant composition and found the various claimed components of the composition reacted with one another to form new materials different than the claimed starting components, and concluded the plaintiff could not prove infringement since the patent did not claim the materials formed by the reaction. The court, however, indicated in dicta that had the patent included product by process claims, the

plaintiff would have prevailed. The present application also relates to lubricant technology and appellant claims the invention as a product produced by a process in view of the Exxon decision.

Again, if The Board finds the prior art only anticipates the generic claims or renders them obvious, then the prior art would not necessarily anticipate or make obvious the species claims that include the following parameters:

- (1) A superabsorbent polymer that absorbs greater than 100 times its weight in water and desorbs water when dried;
- (2) The composition containing a viscosity modifying agent;
- (3) The composition containing a binder;
- (4) The composition coated on a cable;
- (5) The composition coated on a wire.

These species parameters add a dimension to the generic claims that show the further unique characteristics of the invention. As judge Rich has said, species claims that embody a narrower concept of the invention promote "the socially valuable incentive to further research and development provided by the opportunity to obtain subservient patents[; by not allowing them, the incentive] will be considerably diminished." Fields et al. v. Woodward, 170 U.S.P.Q. 276, 280 (C.C.P.A. 1971).

CONCLUSIONS

Appellant requests The Board to overrule the examiner in all respects. If The Board overrules all of the statutory rejections but sustains any of the outstanding double patenting rejections, appellant requests them to remand the application to the examiner to withdraw the remaining provisional double patenting rejections and pass the present application to issue in view of MPEP § 804(I)(B) p.800-19 August 2001.

Respectfully submitted,

THE LAW OFFICES OF ROBERT J. EICHELBURG

Dated: February 23, 2004

Robert J. Eichelburg Reg. No. 23,057

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service under 37 C.F.R. § 1.8 on the date indicated below and is addressed to the Commissioner of Patents, P.O. BOX 1450, Alexandria, Virginia 22313 -1450

Dated: February 23, 2004

Robert J. Eichelburg, Reg. No 23,057

(9) Appendix

Claim 57. A coating formed on the surface of a substrate, said coating comprising a superabsorbent polymer further comprising a lubricant wherein said lubricant is a solid organic lubricant, a solid inorganic lubricant, water containing a lubricant additive, a phosphate, petroleum oil grease, wax, a synthetic oil lubricant selected from silicones, polyphenyl ethers, silicates, chlorinated aromatics, flurocarbons and polyglycol lubricants or greases thereof, wherein said lubricants optionally containing a lubricant additive.

Claim 58. The coating of claim 57 wherein the superabsorbent polymer absorbs greater than 100 times its weight in water and desorbs water when the coating is dried.

Claim 59. The coating of claim 57 further comprising a viscosity modifying agent.

Claim 60. The coating of claim 58 further comprising a viscosity modifying agent.

Claim 61. The coating of claim 57 wherein the substrate comprises a cable.

Claim 62. The coating of claim 57 wherein the substrate comprises a

wire.

Claim 63. The coating of claim 61 further comprising a viscosity modifying agent.

Claim 64. The coating of claim 62 further comprising a viscosity modifying agent.

Claim 65. The coating of any one of claims 57, 58, 61 or 62 wherein the coating comprises a product made by the process of combining said superabsorbent polymer with said lubricant.

Claim 66. The coating of any one of claims 59, 63 or 64 where said coating comprises a product produced by the process of combining said superabsorbent polymer, lubricant and viscosity modifying agent.

Claim 67. The coating of any one of claims 57-64 further comprising a binder.

Claim 68. The coating of claim 67 wherein said coating comprises a product produced by the process of combining said superabsorbent polymer, said lubricant and said binder, and said viscosity modifying agent when present.

Claim 69. A substantially anhydrous coating on at least one surface of two surfaces that frictionally engage one another, said coating comprising a superabsorbent polymer further comprising a lubricant wherein said lubricant is a solid inorganic compound, a solid organic compound, a phosphate, a petroleum oil, petroleum oil grease, fatty oil, fatty acid, wax, a synthetic oil lubricant which is selected from silicones, polyphenyl ethers, silicates, chlorinated aromatics, flurocarbons, polyglycol lubricants or greases thereof, polymerized olefins, organic esters, or an isostearyl alcohol containing two oxyethylene groups wherein said lubricant optionally contains a lubricant additive.

Claim 70. The coating of claim 69 wherein the superabsorbent polymer absorbs greater than 100 times its weight in water and desorbs water when the coating is dried.

Claim 71. The coating of claim 69 further comprising a viscosity modifying agent.

Claim 72. The coating of claim 70 further comprising a viscosity modifying agent.

Claim 73. The coating of claim 69 wherein the substrate comprises a cable.

Claim 74. The coating of claim 69 wherein the substrate

comprises a wire.

Claim 75. The coating of claim 73 further comprising a viscosity modifying agent.

Claim 76. The coating of claim 74 further comprising a viscosity modifying agent.

Claim 77. The coating of any one of claim 69, 73 or 74 wherein the coating comprises a product made by the process of combining said superabsorbent polymer with said lubricant.

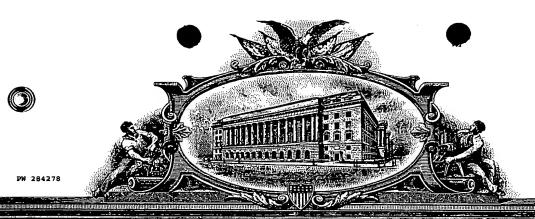
Claim 78. The coating of any one of claims 71, 75 or 76 where said coating comprises a product produced by the process of combining said superabsorbent polymer, lubricant and viscosity modifying agent.

Claim 79. The coating of any one of claims 69-76 further comprising a binder.

Claim 80. The coating of claim 79 wherein said coating comprises a product produced by the process of combining said superabsorbent polymer, said lubricant and said binder, and said viscosity modifying agent when present.

Claim 81. The coating of any one of claims 71, 73 – 76 wherein the superabsorbent polymer absorbs greater than 100 times its weight in water.

- Claim 82. The coating of claim 77 wherein the superabsorbent polymer absorbs greater than 100 times its weight in water.
- Claim 83. The coating of claim 78 wherein the superabsorbent polymer absorbs greater than 100 times its weight in water.
- Claim 84. The coating of claim 79 wherein the superabsorbent polymer absorbs greater than 100 times its weight in water.
- Claim 85. The coating of claim 80 wherein the superabsorbent polymer absorbs greater than 100 times its weight in water.



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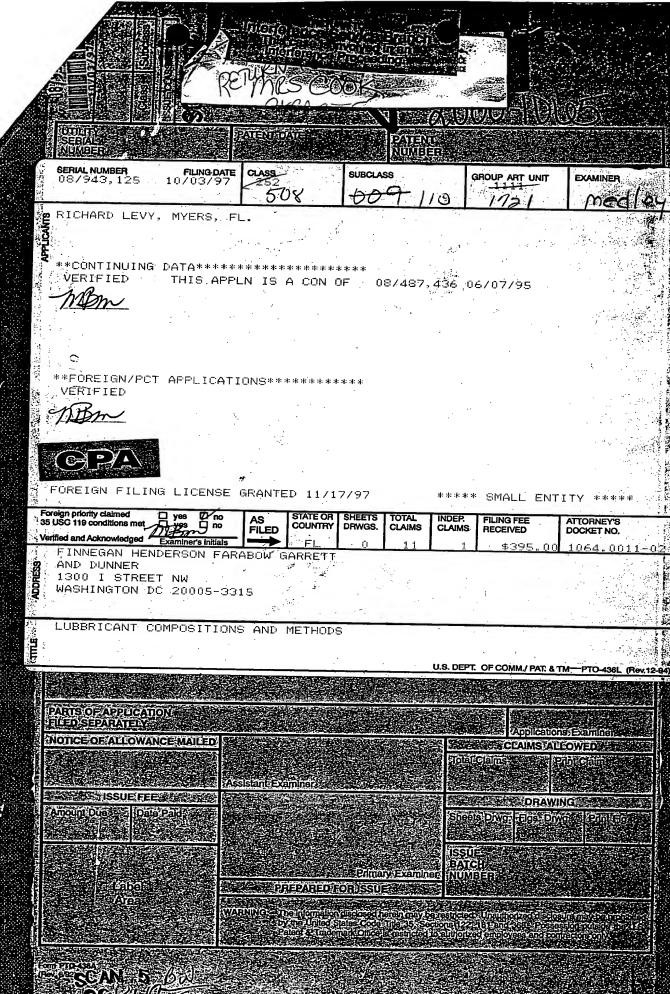
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